



# *The Connecticut Agricultural Experiment Station*

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*Founded 1875*

*Putting science to work for society*

## Appropriations Committee Presentation February 17, 2009

Good evening Senator Harp, Representative Geragosian, and other members of the Appropriations Committee. My name is Louis Magnarelli. I am the Director of The Connecticut Agricultural Experiment Station (CAES). As you know, our scientists and technicians work on a wide range of problems on food and product safety, public health, forestry, agriculture, and on air, water and soil quality. I am here this evening to give you a brief progress report, including some examples of positive monetary impacts our research has had or is expected to have on Connecticut residents and businesses. Other results and impacts can be found in the Director's Report, which is available on the Experiment Station's website ([www.CT.GOV/CAES](http://www.CT.GOV/CAES))

**Food Safety:** Connecticut General Statutes [Sec. 22-81(c)] directs the CAES to conduct analyses as required by any state agency. With increased commerce from foreign countries and more emphasis on large-scale food processing domestically, there have been instances when foods, beverages, and other products have contained unwanted chemicals, such as pesticide residues, melamine, or lead. In cooperation with the Department of Consumer Protection, chemists at the CAES have detected the pesticide benomyl in pomegranate juice and melamine (an industrial chemical) in cookies and candy imported from China. These findings resulted in a prompt national recall of 6,746 cases of pomegranate juice and contaminated cookies and candy when the US Food and Drug Administration activated state and federal laboratories in the Food Emergency Response Network (FERN). The CAES is included along with 7 other states and the federal facilities in the FERN program. The product recalls prevented illnesses in humans and domesticated animals. In addition, chemists at the CAES continue to collaborate with the 14<sup>th</sup> Connecticut National Guard Civil Support Team in training exercises as a part of the counter-terrorism program on toxic chemicals.

**Mosquitoes/Encephalitis Viruses:** Pursuant to Connecticut General Statutes Sec. 22-81a, scientists and technicians at the CAES collected mosquitoes from 91 sites statewide, identified the insects to species, and analyzed specimens for encephalitis viruses. The West Nile virus and Eastern Equine Encephalitis (EEE) virus are most important because infections can cause fatalities in people and horses. However, we also track several other encephalitis viruses that can cause human illnesses as well. Our reference collection, originally a part of the Yale University arbovirus collection, has about 475 viruses from around the world. This resource would be needed to help identify new exotic viruses that might enter the state. During 2008, 211,657 mosquitoes were identified and tested. There were 191 isolations of West Nile virus, mainly from New Haven and Fairfield Counties, but infected mosquitoes also were collected in Glastonbury, Hartford, New Britain,

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Wethersfield, and South Windsor. There have been 69 reported human cases and 3 fatalities in Connecticut since the virus's entry into the northeastern US in 1999. There were no isolations of EEE virus in 2008. Results were reported to the Department of Public Health and local health officials before being released to the public.

**Ticks and Disease Agents:** Blacklegged ticks transmit disease organisms that cause Lyme disease, granulocytic anaplasmosis, and babesiosis. Studies continue on screening ticks for other bacterial pathogens and on tick control.

**Invasive Aquatic Plants:** Pursuant to Connecticut General Statutes Sec. 22-84a, research was conducted with goals of integrated pest management (IPM). Several species of invasive plants can invade lakes and ponds, and with rapid growth, can choke bodies of water, eliminate native plants, negatively affect fish habitats, and cause loss of water quality. Experiments were conducted with an herbicide to find a method of clearing variable milfoil from an experimental plot of about 10 acres in Bashan Lake (East Haddam). With the aid of a computer and a geographical positioning system on a boat, a single herbicide treatment applied at a low concentration in late summer was most effective. The conventional control with two treatments in spring and late summer was not necessary. There was an immediate impact because less herbicide was used. The decreased use of this pesticide from 200 pounds per acre to 75 to 100 pounds per acre also saved about \$4,000 in treatment costs for our test plot. These methods are now being used in other lakes where this weed is a problem. Long-term benefits include less pesticide exposure in the environment, reduced toxicity to native plants, improved water quality for recreation, and decreased risks of contaminating wells.

**Agriculture:** The wine industry is growing in Connecticut. There are at least 25 wineries with grape production on about 600 acres of land. These wineries add substantially to local economies when tourists spend money in restaurants, hotels, "bed and breakfasts", etc. An Experiment Station scientist is testing new grape cultivars, some of which grow well in our state and show high yields of quality grapes. Cold temperatures and winter injury to grape plants, however, can cause significant economic losses. Our experiments on evaluating certain rootstocks of *Vitis vinifera* grape cultivars that are resistant to winter damage were successful. The use of cold-hardy rootstocks can result in a savings of about \$7.40 for each year of lost production per vine plus costs of about \$3.50 associated with plant replacement and labor involved in removing diseased vines and replanting. There is an estimated savings of about \$126,000 for 90 acres of production covering 3 years of re-establishment costs. These savings are expected to continue to accumulate in subsequent years.

Census data indicate an increase in minority populations in Connecticut. Certain specialty crops, such as Chinese cabbage, calabaza (squash), jilo, and sweet potatoes are in great demand. Growers in the state also want new crops. Accordingly, different cultivars of vegetables were evaluated for yield and pest damage. Good progress has been made. For example, results of field experiments revealed that Chinese cabbage grows well in Connecticut soils, yields are high, and little or no pesticides are required to prevent damage caused by insects or plant pathogens. Yields averaged about 17.5 tons/acre. At a price of about \$0.99 per pound, there is a potential crop value of about \$38,400 per acre. Some growers have included this crop in their farm operations. The

long-term benefits will include greater profits for growers, less pesticide use, farmland preservation, and a source of locally grown, nutritious food for consumers.

The "Green Industry" contributes about \$1 billion to Connecticut's economy. Pursuant to Connecticut General Statutes Sec. 22-84, Experiment Station staff inspect and regulate shipments of plants and plant products to other states and countries. Scientists also conduct experiments to solve pest problems by using IPM practices.

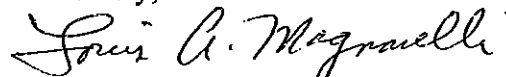
Christmas trees are grown on about 6,000 acres in Connecticut. It takes about 8 years to grow a tree worth about \$30.00. With growth of about 1,000 trees per acre, this crop in the state is valued at about \$22.5 million. However, insect pests, such as armored scales and several species of beetles, can cause significant damage to trees and economic losses. Experiments were conducted on the minimal use of short-lived, less toxic pesticides and biological control methods to find solutions to these and other pest problems. Several methods are now being used in IPM programs to ensure a quality product with less pesticide use. The estimated annual monetary gain by using IPM control methods to prevent insect damage and to reduce replanting expenses is about \$2.25 million. Long-term benefits include continued profits for growers, less pesticide exposure to workers, a cleaner environment with no groundwater pollution, and a quality product for consumers.

**Bed bugs:** These insects invade hotels and homes, and once established, populations can increase rapidly. Pesticides used in the past have little or no effect because the insects have developed resistance to these chemicals. In response to numerous requests from urban housing authority officials, the CAES scientists have initiated studies on the control of bed bugs and are hosting a symposium for municipal officials.

**Current Budget Status:** Clearly, the downturn in the US economy has had a profound negative impact on Connecticut's state budget. The CAES has experienced three rescissions, and we will do everything possible to make adjustments. Although our agency will not show a deficit with our legal appropriated budget, the rescissions will cause a cash deficiency of a projected \$190,000 as of June 30, 2009. Moreover, with the proposed appropriations for fiscal years 2010 and 2011, we would be unable to fill a vacant chemistry position to address contamination of lead, arsenic, and other heavy metals in foods, beverages, other commercial products, and soil.

Please feel free to contact me (203) 974-8440 if you have questions. Thank you for your continued support and interest in our research programs.

Sincerely,



Louis A. Magnarelli, Ph.D.  
Director